



## King County

Department of Natural Resources and Parks  
Water and Land Resources Division  
**Noxious Weed Control Program**  
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## BEST MANAGEMENT PRACTICES

### Purple loosestrife (*Lythrum salicaria*) Lythraceae

### Class B Noxious Weed

#### Impact

- An invasive and competitive noxious weed that alters wetland ecosystems by replacing native and beneficial plants. Waterfowl, fur-bearing animals and birds leave wetlands when their food source, nesting material and ground cover are replaced by purple loosestrife.
- Agriculture is impacted by a loss of wild meadows, hay meadows and wetland pastures.



#### Description

- Perennial emergent aquatic plant, reaching over 9 feet tall and 5 feet wide. As many as 30-50 herbaceous stems annually rise from a persistent perennial tap root and spreading rootstock.
- **Square stems** (usually 4-sided, sometimes 6-sided). Leaves are usually opposite. The linear leaves are 1 ½ to 4 inches long, with smooth edges and are sometimes covered with fine hairs.
- The showy **magenta flowers appear from July to October** on flowering spikes. The flowers usually have 6 sepals, 6 petals and 12 stamens. Flowers will continue until frost.
- In winter months, dead brown flower stalks remain with old seed capsules visible on the tips.



purple  
loosestrife

spirea

fireweed

#### LOOK ALIKES

The native *Spirea douglasii* has round stems, flowers have 5 tiny petals and the leaf tip edges are serrated.

The native fireweed (*Epilobium angustifolium*) has round stems, flowers have 4 petals and the leaf underside has a distinctive mid vein.

## Habitat

- Occurs in freshwater and brackish wetlands.
- Grows on moist or saturated soils.
- Sometimes cultivated as a garden ornamental.



## Reproduction

- Spreads by seed and root fragmentation. A mature plant can produce 2.7 million seeds the size of ground pepper. There is little information about seed viability under field conditions. Seeds stored in laboratory conditions are viable for about 3 years.
- Seeds are mainly dispersed down slope, and not downwind. Seedling densities sharply fall within 34 feet of the parent plant. Seeds are also moved through wetland mud by animals, humans, boats or vehicles.
- Seed banks build for years, unnoticed until the right conditions of disturbance appear, resulting in a population explosion. Mature stands of purple loosestrife can live for 20 years.
- The taproot develops early in the seedling stage. When mature, the taproot and major root branches become thick and woody.
- Vegetative spread is also possible. Buried stems harbor adventitious buds with the ability to produce shoots or roots. Stomping and breaking underground stems, or breaking off stems or roots during incomplete plant removal initiates bud growth.

## Control Methods

The preferred management plan uses Integrated Pest Management (IPM). IPM involves selecting from a range of possible control methods to match the management requirements of each specific site. The goal is to maximize effective control and to minimize negative environmental, economic and social impacts. Management may require dedication over a number of years, and should allow for flexibility in methods as appropriate.

## Early Detection and Prevention

- Look for new plants. Get a positive plant identification.
- Don't buy or plant purple loosestrife. According to state quarantine laws it is illegal to buy, sell or offer purple loosestrife of any of its cultivars for sale.

## Manual

- If the plants are in flower, **cut off and bag all flower heads**. It is very difficult to pull the plants without dispersing the small, lightweight seeds. Brush off boots and clothes before leaving the infested area. The plants may continue to produce flowers. Sites will have to be consistently and regularly monitored until frost to cut and remove any subsequent flowers.
- Hand pulling is recommended for very young plants not yet established, when vegetative spread through root fragments is less likely to occur.

## Manual – continued

- Larger plants from isolated small populations can be dug out from moist upland areas. This is impractical to impossible when trying to remove hardy, woody roots in saturated wetland soils.
- Flower heads and all plant fragments should be bagged on site and disposed of as trash. Do not compost this noxious weed.
- All manual control sites should be monitored for several years for signs of plants growing from root fragments and from the seed bank.

## Mechanical

- Cutting alone is not a control option for purple loosestrife. Shoots and adventitious roots will develop. Cutting late in the season but before seed set reduces shoot production more than mid summer cutting.
- Black plastic covering is an interim option for dense seedling infestations. It does not kill the roots of mature plants, but it does slow down growth and seed production.

## Biological

Releasing biocontrol agents is an option on sites with large stands of purple loosestrife. It can take 4 to 5 years for any visible signs of impact to the overall infestation. Biocontrol agents will not eradicate a weed, but they can slow or stop seed production. Biocontrols may provide the long-term success in controlling this noxious weed.

- Two species of *Galerucella* beetles were released in Washington in 1992. These leaf-feeders defoliate and attack the terminal bud area, drastically reducing seed production. The larvae feed constantly on the leaf underside, leaving only the thin cuticle layer on the top of the leaf. The mortality rate to purple loosestrife seedlings is high.

The *Galerucella* beetles are so effective in some areas of Washington that they have slowed the spread of purple loosestrife enough for native or beneficial plants to recolonize a wetland. Research continues on the effect of *Galerucella* beetles on large stands of purple loosestrife, and research continues for restoration recommendations.

- *Hylobius transversovittatus* is a root-mining weevil that also eats leaves. The adult beetle eats from the leaf margins, working inward. Eggs are laid in the lower 2-3 inches of the stem, or sometimes in the soil near the root. The larvae then work their way to the root, where they eat the carbohydrate reserves. Evidence of larvae in the root is a zig-zag pattern.

## Chemical

Note: Chemical control options may differ for private and commercial users. Follow all label directions. Herbicides should only be applied at rates recommended on the label and for the site conditions and land usage specified on the label.

- Glyphosate (e.g. Rodeo® or Aquamaster®) by a licensed aquatic applicator with proper permits. Apply to actively growing plants at full to late flowering stage. Seedlings may be effectively treated early in the season after a fall application to mature plants. Apply to foliage but avoid runoff. Caution: Glyphosate is non-selective: it will injure or kill other vegetation contacted by the spray.

## Chemical - continued

- Triclopyr (e.g. Garlon 4 or Garlon 3A, Renovate®) by a licensed aquatic applicator with proper permits. Application with handgun when plants are in the mid to full-bloom stage, or early in the season on seedlings. NOTE: Garlon is labeled for use on non-irrigation ditch banks and in seasonally dry wetlands. Renovate® is approved for aquatic use and may be used in wetlands and buffers and around/in other water bodies.

## Legal Status in King County:

**Purple loosestrife is a Class B Noxious Weed.** *The King County Noxious Weed Control Board requires property owners to control purple loosestrife on private and public lands throughout the county.*

## Local Distribution

Found on lakes and waterways throughout King County, with 663 total sites reported in 2002.

## History

- Purple loosestrife was first collected in Washington, in 1929 from Lake Washington. The first eastern Washington collection was in the 1940's from the Spokane area, although there are reports that it escaped from a garden to the Spokane River ten years earlier.
- In the mid to late 1800's this plant was introduced to the United States at northeastern port cities, as ballast of ships from European tidal flats. For the next 100 years it was a pioneer species while it acclimated to the northeastern seaboard at the St. Lawrence Seaway.
- This plant worked its way throughout the US following an east-to-west migration route following interstate highways (I-90), riding wind currents created by traffic and using the disturbance created from highway construction to carry it through nearby waterways or drainage systems.

## References

William, R.D. and D. Ball, T. Miller, R. Parker, J. Yenish, T. Miller, D. Morishita and P. Hutchinson. 2002. Pacific Northwest Weed Management Book. Oregon State University, revised annually.  
Written Findings. 1997. Washington State Noxious Weed Control Board.

### For more information, contact:

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